Amendment to the Claims

1. (Withdrawn) A method for manufacturing a low-resistance ITO film comprising a step of:

depositing an ITO film on a crystalline substrate having a temperature of 500-1000°C by a pulsed laser vapor deposition method.

2. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 1, wherein a crystal orientation of a surface of said crystalline substrate is receptive to a crystal structure of In_2O_3.

3. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 1, wherein said crystalline substrate is one of a YSZ single crystal substrate, a substrate on which a c-axis oriented ZnO thin film is formed, a sapphire substrate, a SiC single crystal substrate and a silicon single crystal substrate.

4. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 3, wherein said crystalline substrate is a YSZ single crystal substrate super-flattened to an atomic order by a heat treatment in the range of 1200-1500°C.

5. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 2, wherein said I%O film is deposited in heteroepitaxial growth.

6. (Withdrawn) A method for manufacturing a low-resistance ITO Film according to claim 1, wherein indium oxide is deposited lattice by lattice in an atomic layer growth mode at a low deposition rate on said substrate.

7. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 1, wherein said ITO film has a resistance of less than 1×10^{-4} Ω cm.

8. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 1, wherein said ITO film has a SnO_2 content of 2.8 – 10.5 mol%.

9. (Withdrawn) A method for manufacturing a low-resistance ITO film comprising a step of:

depositing ITO film on a crystalline substrate by one of a low-voltage sputtering, an oxygen cluster beam deposition, a chemical vapor deposition, a metal organic chemical vapor deposition, a metal organic chemical vapor deposition – atomic layer deposition, and a molecule beam epitaxy.

10. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 9, wherein said ITO film is deposited on a crystalline substrate having a temperature of 500-1000°C.

11. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 9, wherein a crystal orientation of a surface of said crystalline substrate is receptive to a crystal structure of In_2O_3.

12. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 11, wherein said crystalline substrate is one of a YSZ single crystal substrate, a substrate on which a c-axis oriented ZnO thin film is formed, a sapphire substrate, a SiC single crystal substrate and a silicon single crystal substrate.

13. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 12, wherein said crystalline substrate is a YSZ single crystal substrate super-flattened to an atomic order by a heat treatment in the range of 1200-1500°C.

14. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 1, wherein said ITO film is deposited in heteroepitaxial growth.

15. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 9, wherein said ITO film has a resistivity lower than 1×10^{-4} Ω cm.

16. (Withdrawn) A method for manufacturing a low-resistance ITO film according to claim 9, wherein said ITO film has a SnO_2 content of 2.8 – 10.5 mol%.

17-33. (Canceled)

34. (Currently Amended) A low resistance ITO thin film having a resistivity less than 1×10^{-4} Ω cm, said film deposited on a single crystalline substrate ~~by epitaxial growth~~ having a crystal face selected from the group consisting of a YSZ single crystal (100) face, a YSZ single crystal (111) face, a 3C-SiC single crystal (100) face, a CaF_2 single crystal (100) face, a MgO single crystal (100) face, a 6H-SiC single crystal (0001) face and a ZnO (0001) face.

35. (Currently Amended) A low resistance ITO thin film according to claim 34, wherein Sn dopant activity defined as {carrier density (cm^{-3})/ Sn density in said ITO film (number of Sn / cm^3)} is greater than about 80%.

36. (Previously Presented) A low resistance ITO thin film according to claim 34, wherein film mobility is greater than 39 cm^2/Vs.

37. (Currently Amended) A ~~substrate having a low resistant~~ resistance ~~ITO thin film comprising:~~

~~a single crystalline substrate; and~~

[[a]] low resistance ITO thin film having a resistivity ~~lower~~ less than about 1×10^{-4} Ω cm deposited on a c-axis-oriented ZnO film provided on a ~~said single~~ crystalline substrate, said low resistance ITO thin film being deposited by epitaxial growth.

38. (Currently Amended) ~~A substrate having a low resistant~~ A low resistance ITO thin film according to claim 37, wherein Sn dopant activity defined as {carrier density (cm^{-3}) / Sn density in said ITO film (number of Sn / cm^3)} is greater than about 80%.

39. (Currently Amended) ~~A substrate having a low resistant~~ A low resistance ITO thin film according to claim 37, wherein mobility of said ITO thin film is greater than about 39 cm^2/Vs.

40. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim [[37]] 34, wherein said ITO thin film has a pattern formed thereon.

41. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim [[37]] 34, wherein said ITO thin film has a ~~In_2O_3~~ In_2O_3 crystal structure of one of a C-rare earth type and a corundum type.

42. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim [[37]] 34, wherein said ITO thin film is formed on said substrate which has a temperature [[of]] between about 500 [[–]] and about 1000 °C by a pulsed laser deposition method.

43. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim [[37]] 34, wherein said ITO thin film is formed by one of a low-voltage sputtering, an oxygen cluster beam deposition, a chemical vapor deposition, ~~a metal organic chemical vapor deposition, a metal organic chemical vapor deposition,~~ a metal organic chemical vapor deposition – atomic layer deposition, and a molecule beam epitaxy.

44. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim 37, wherein said ~~single crystal~~ crystalline substrate is provided to accept ~~an In_2O_3~~ said c-axis-oriented ZnO film crystal structure deposited thereon.

45. (Canceled)

46. (Currently Amended) A ~~substrate having a low resistant~~ low resistance ITO thin film according to claim 37, wherein said single crystalline substrate is one of a YSZ single crystal substrate, a substrate on which a ~~C-axis~~ c-axis oriented ~~ZnO~~ ZnO thin

film is formed, a sapphire substrate, a SiC single crystal substrate and a silicon single crystal substrate.

47-48. (Canceled)

49. (New) A low resistance ITO thin film having a resistivity less than about 1×10^{-4} Ω cm deposited on a c-axis oriented ZnO film provided on a glass substrate, said low resistance ITO thin film being deposited by epitaxial growth.